Remarks & Arguments

In the Office Action, the Examiner noted that Claims 1-55 are pending in the application, and that Claims 1-55 are rejected. By this amendment, Claims 1, 20, 37 and 53 have been amended and Claim 8 has been canceled without prejudice. Thus, Claims 1-7 and 9-55 are pending in the application. The amendments to the claims do not add new matter to the application. The Examiner's rejections are traversed below.

Rejections Under 35 U.S.C. 102

Claims 1-3, 8, 9, 15, 17, 18, 20, 21, 26, 27, 32, 35-37, 42, 43, 48 and 51-54 stand rejected under 35 U.S.C. 102 as being anticipated by U.S. Patent Application No. 2002/0111038 to Matsumoto. Applicant respectfully traverses the rejection on the basis that Matsumoto does not teach every element recited in the independent Claim 1, 20, 37 and 53.

Claim 1, as amended, recites "a computing device, coupled to said measurement device, for calculating a correction between said existing geometric pattern and an expected pattern for said n^{th} layer" and "an mask pattern transformation component, coupled to said computing device, **for performing a pattern transformation** on data for a pattern for an $(n+1)^{th}$ layer mask, based on said correction, to generate data for a corrected pattern." Accordingly, the system calculates a correction that is used to adjust the pattern of a mask.

In contrast, Matsumoto discloses calculating an **exposure condition** correction value. The exposure condition correction value is an offset value of the shift, rotation, magnification

factor, etc, for exposing the reference exposure field. For example, the exposure condition correction value is used to determine amount to shit the wafer state of the exposure tool, turning the wafer stage or mask stage of the exposure tool, and/or adjusting the magnification faction of the objective lens of the exposure tool. Matsumoto, therefore only discloses adjusting the image generated by the pattern. The pattern of the mask remains fixed.

Applicant therefore respectfully submits that Claim 1 is patentable over Matsumoto. Accordingly, Applicant requests that the anticipation rejection of Claim 1 be withdrawn and that Claim 1 be allowed.

Claims 2-19 are allowable by virtue of their dependency on respective base Claim 1, as well as the additional elements they recite. Accordingly, Applicants respectfully request that the anticipation rejection of Claims 2-19 be withdrawn and that Claims 2-19 be allowed.

Claims 20, 37 and 53 are rejected by the Office for the same reasons advanced with regard to Claim 1. Accordingly, Applicant respectfully assert that Claims 20, 37 and 53, as amended, are patentable over Matsumoto for the same reasons as advanced above with respect to Claim 1. Furthermore, Claims 21-36, 38-52, 54 and 55 are allowable by virtue of their dependency on respective base Claims 20, 37 and 53. Accordingly, Applicant respectfully requests that the anticipation rejection of Claims 21-36, 38-52, 54 and 55 be withdrawn and that Claims 21-36, 38-52, 54 and 55.

Claims 1-3, 8, 17, 18, 20, 21, 26, 27, 35-37, 43 and 51-53 stand rejected under 35 U.S.C. 102 as being anticipated by U.S. Patent No. 6,200,710 to Hada. Applicant respectfully traverses

the rejection on the basis that Hada does not teach every element recited in the independent

Claim 1, 20, 37 and 53.

Claim 1, as amended, recites "a measurement device for optically measuring an existing

geometric pattern **fabricated** on an nth layer of said substrate," "a computing device, coupled to

said measurement device, for calculating a correction between said existing geometric pattern

and an expected pattern for said n^{th} layer" and "an mask pattern transformation component,

coupled to said computing device, for performing a pattern transformation on data for a pattern

for an $(n+1)^{th}$ layer mask, based on said correction, to generate data for a corrected pattern."

Accordingly, the system calculates a correction as a function of the previous pattern **as**

fabricated and as designed. The correction is used to adjust the current pattern of a mask

during fabrication. In contrast, Hada discloses only discloses receiving design data (step S102;

col. 5, lines 21-26; Fig. 2). The correction (determined at step 105; col. 6, lines 33-46; col. 3,

lines 55-67; Fig. 5).

Applicant therefore respectfully submits that Claim 1 is patentable over Hada.

Accordingly, Applicant requests that the anticipation rejection of Claim 1 be withdrawn and that

Claim 1 be allowed.

Claims 2-19 are allowable by virtue of their dependency on respective base Claim 1, as

well as the additional elements they recite. Accordingly, Applicants respectfully request that the

anticipation rejection of Claims 2-19 be withdrawn and that Claims 2-19 be allowed.

Claims 20, 37 and 53 are rejected by the Office for the same reasons advanced with

regard to Claim 1. Accordingly, Applicant respectfully assert that Claims 20, 37 and 53, as

amended, are patentable over Hada for the same reasons as advanced above with respect to

Claim 1. Furthermore, Claims 21-36, 38-52, 54 and 55 are allowable by virtue of their

dependency on respective base Claims 20, 37 and 53. Accordingly, Applicant respectfully

requests that the anticipation rejection of Claims 21-36, 38-52, 54 and 55 be withdrawn and that

Claims 21-36, 38-52, 54 and 55.

Rejections Under 35 U.S.C. 103

Claims 4-7, 22-25 and 38-41 stand rejected under 35 U.S.C. 103 as being obvious in view

of U.S. Patent Application No. 2002/0111038 to Matsumoto. As discussed above, with respect

to independent Claims 1, 20, 37 and 53, Matsumoto only discloses **adjusting the image**

generated by a static pattern. Matsumoto does not teach or suggest calculating a correction that

is used to **adjust the pattern** of a mask. Thus, the assertion that "it would have been obvious to

one of ordinary skill of art to use the radiation source in order to provide a radiation source of

appropriate wavelength" does not address the limitations recited in Claims 1, 20, 37 and 53 that

Matsumoto has been shown not to teach or suggest. Accordingly, Claims 4-7, 22-25 and 38-41

are allowable over Matsumoto and the alleged ordinary skill, by virtue of their dependency on

respective Claims 1, 20, 37 and 53. Applicant therefore respectfully requests that the

obviousness rejection of Claims 4-7, 22-25 and 38-41 be withdrawn and that Claims 4-7, 22-25

and 38-41 be allowed.

Claim 10 stands rejected under 35 U.S.C. 103 as being obvious in view of the

combination of U.S. Patent Application No. 2002/0111038 to Matsumoto and U.S. Patent No.

6,018,383 to Dunn. As discussed above, with respect to independent Claim 1, Matsumoto only

discloses **adjusting the image** generated by a static pattern. Matsumoto does not teach or

suggest calculating a correction that is used to **adjust the pattern** of a mask. Dunn is cited as

discussing a flexible substrate. Thus, Dunn does not add anything to the teachings of Matsumoto

with reference to the recited limitations in Claim 1 that Matsumoto has been shown not to teach

or suggest. Accordingly, Claim 10 is allowable over Matsumoto, Dunn and the combination

thereof, by virtue of its dependency on Claim 1. Applicant therefore respectfully requests that

the obviousness rejection of Claim 10 be withdrawn and that Claim 10 be allowed.

Claims 11, 28 and 44 stands rejected under 35 U.S.C. 103 as being obvious in view of the

combination of U.S. Patent Application No. 2002/0111038 to Matsumoto and U.S. Patent

Application No. 2005/0052646 to Wohlstadter. As discussed above, with respect to independent

Claim 1, Matsumoto only discloses **adjusting the image** generated by a static pattern.

Matsumoto does not teach or suggest calculating a correction that is used to **adjust the pattern**

of a mask. Wohlstadter is cited as discussing a plastic substrate. Thus, Wohlstadter does not add

anything to the teachings of Matsumoto with reference to the recited limitations in Claim 1 that

Matsumoto has been shown not to teach or suggest. Accordingly, Claims 11, 28 and 44 are

allowable over Matsumoto, Wohlstadter and the combination thereof, by virtue of their

dependency on respective Claims 1, 20 and 37. Applicant therefore respectfully requests that the

obviousness rejection of Claims 11, 28 and 44 be withdrawn and that Claims 11, 28 and 44 be

allowed.

Claims 12, 29 and 45 stands rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application No. 2002/0111038 to Matsumoto and U.S. Patent Application No. 2004/0232943 to Sheats. As discussed above, with respect to independent Claim 1, Matsumoto only discloses **adjusting the image** generated by a static pattern. Matsumoto does not teach or suggest calculating a correction that is used to **adjust the pattern** of a mask. Sheats is cited as discussing a metal substrate. Thus, Sheats does not add anything to the teachings of Matsumoto with reference to the recited limitations in Claim 1 that Matsumoto has been shown not to teach or suggest. Accordingly, Claims 12, 29 and 45 are allowable over Matsumoto, Sheats and the combination thereof, by virtue of their dependency on respective Claims 1, 20 and 37. Applicant therefore respectfully requests that the obviousness rejection of Claims 12, 29 and 45 be withdrawn and that Claims 12, 29 and 45 be allowed.

Claims 13, 30 and 46 stands rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application No. 2002/0111038 to Matsumoto and U.S. Patent Application No. 2001/0045362 to Deng. As discussed above, with respect to independent Claim 1, Matsumoto only discloses **adjusting the image** generated by a static pattern. Matsumoto does not teach or suggest calculating a correction that is used to **adjust the pattern** of a mask. Deng is cited as discussing a paper substrate. Thus, Dang does not add anything to the teachings of Matsumoto with reference to the recited limitations in Claim 1 that Matsumoto has been shown not to teach or suggest. Accordingly, Claims 13, 30 and 46 are allowable over Matsumoto, Deng and the combination thereof, by virtue of their dependency on respective Claims 1, 20 and 37.

Applicant therefore respectfully requests that the obviousness rejection of Claims 13, 30 and 46 be withdrawn and that Claims 13, 30 and 46 be allowed.

Claims 14, 31 and 47 stands rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application No. 2002/0111038 to Matsumoto and U.S. Patent Application No. 2005/0073664 to Park. As discussed above, with respect to independent Claim 1, Matsumoto only discloses **adjusting the image** generated by a static pattern. Matsumoto does not teach or suggest calculating a correction that is used to **adjust the pattern** of a mask. Park is cited as discussing a plastic substrate. Thus, Park does not add anything to the teachings of Matsumoto with reference to the recited limitations in Claim 1 that Matsumoto has been shown not to teach or suggest. Accordingly, Claims 14, 31 and 47 are allowable over Matsumoto, Park and the combination thereof, by virtue of their dependency on respective Claims 1, 20 and 37. Applicant therefore respectfully requests that the obviousness rejection of Claims 14, 31 and 47 be withdrawn and that Claims 14, 31 and 47 be allowed.

Claims 16, 33, 49 and 55 stands rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application No. 2002/0111038 to Matsumoto and U.S. Patent No. 5,585,925 to Sato. As discussed above, with respect to independent Claim 1, Matsumoto only discloses **adjusting the image** generated by a static pattern. Matsumoto does not teach or suggest calculating a correction that is used to **adjust the pattern** of a mask. Sato is cited as discussing using a spline function to make corrections in alignment of the image generated by a static pattern. Thus, Sato does not add anything to the teachings of Matsumoto with reference to the recited limitations in Claim 1 that Matsumoto has been shown not to teach or suggest.

Accordingly, Claims 11, 28 and 44 are allowable over Matsumoto, Sato and the combination thereof, by virtue of their dependency on respective Claims 1, 20 and 37. Applicant therefore respectfully requests that the obviousness rejection of Claims 16, 33, 49 and 55 be withdrawn and that Claims 16, 33, 49 and 55 be allowed.

Claims 19, 34 and 50 stands rejected under 35 U.S.C. 103 as being obvious in view of the combination of U.S. Patent Application No. 2002/0111038 to Matsumoto and U.S. Patent No. 6,312,134 to Jain. As discussed above, with respect to independent Claim 1, Matsumoto only discloses **adjusting the image** generated by a static pattern. Matsumoto does not teach or suggest calculating a correction that is used to **adjust the pattern** of a mask. Furthermore, Jain only discloses forming the pattern of the mask. Therefore, the combination of Matsumoto only teaches forming the pattern of the mask by configuring the digital micro-mirror device and then **adjusting the image** generated therefrom. However, neither Matsumoto nor Jain teach or suggest configuring the digital micro mirror device to **adjust the pattern**. Accordingly, Claims 19, 34 and 50 are allowable over Matsumoto, Jain and the combination thereof. Applicant therefore respectfully requests that the obviousness rejection of Claims 19, 34 and 50 be withdrawn and that Claims 19, 34 and 50 be allowed.

Conclusion

For all the reasons advanced above, Applicants respectfully submit that the present application is in condition for allowance and that action is earnestly solicited. The Examiner is

invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

The Commissioner is hereby authorized to charge any additional fees, which may be required for this amendment, or credit any overpayment, to Deposit Account 23-0085. In the event that an extension of time is required, or may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account 23-0085.

Respectfully submitted,

WAGNER, MURABITO & HAO, LLP

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Eric J. Gash
Registration No. 46,274
Tel.: (408) 938-9060